UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

DEC 18 2013

Mr. Richard Kunze
Public Works Director
1601 South Gordon Cooper Dr.
Shawnee, OK 74801

Dear Mr. Kunze:

Enclosed please find the Sanitary Survey report for the Firelake Grand Casino Water System (PWS#061020808). A Sanitary Survey is a comprehensive evaluation of the source, pumps and pumping facilities, treatment, distribution (including storage facilities), laboratory facilities, management and operator qualifications at a public water system. The report contains a section entitled "Deficiencies" that lists deficiencies and recommendations, split into the following categories:

Significant Deficiencies: These deficiencies must be corrected or be on an approved schedule to be corrected within 120 days of receipt of this letter.

Deficiencies: These deficiencies are to be corrected prior to the next sanitary survey (approximately 3 years).

Recommendations. Recommendations are provided by the surveyors. Addressing recommendations is voluntary.

Please submit a report to this office by April 19, 2014, (120 days from receipt of this letter) indicating a schedule for correcting the significant deficiencies. Failure to do so will place the water system in violation of the National Primary Drinking Water Regulations. The schedule may be submitted to:

José G. Rodriguez
Source Water Protection Branch (6WQ-SD)
EPA Region 6
1445 Ross Ave.
Dallas, TX 75202
rodriguez.jose@epa.gov

The sanitary survey documented in the enclosed report was conducted by Mr. José G. Rodriguez of my staff and Mr. Bill Davis of Bill Davis Consulting on November 20, 2013. I would like to thank Mr. Keith Jennings for his assistance with the survey. Please call Mr. Rodriguez at (214) 665-8087 if you have any questions regarding the enclosed report.

Sincerely yours,

Blake L. Atkins
Chief
Drinking Water Section

Enclosure

cc: (w/enclosure)
Keith Jennings
Utilities Manager
777 Grand Casino Blvd
Shawnee, OK 74804

EPA Region 6
Sanitary Survey Form
System Information and Contacts

PWSS Number	Water System Name	Date
061020808	Firelake Grand Casino Water System	11/20/13

Basic System Information

Recommended Certification Level

ODEQ level 3

System Classification (C-NTNC-NC)	Service Area Type Code	Seasonal (Y/N)	Seasonal Begin Date	Seasonal End Date
C	R	N	N/A	N/A

Legal Entity	Name	Address	Phone Number	Legal Entity Code
Administrative Contact	Richard Kunze Public Works Director	1601 South Gordon Cooper Dr. Shawnee, OK 74801	404-275-3121	AC
Operator in Responsible Charge	Keith Jennings Manager	777 Grand Casino Blvd Shawnee, OK 74804	405-248-0993	DO
Utility Director				
Operator	See List on next page			

Names of Sanitary Survey Inspectors	José G. Rodriguez, US EPA Region 6 Bill Davis, Bill Davis Consulting
Name of Operators Present	Keith Jennings

EPA Region 6
Sanitary Survey Form
System Information and Contacts

Staffing and Certification Information			
Name	**Position**	**Certification/Agency**	**Expiration Date**
Dale Dean	Operator	B Operations (ODEQ) B Lab (ODEQ)	
Keith Jennings	Manager	C Operations (ODEQ) C Lab (ODEQ) C Waste water (ODEQ)	7/14
Josh Jenkins	Operator	D Operations (ODEQ)	
Don Martindale	Operator (at McComb water plant)	B Operations (ODEQ) A Lab (ODEQ)	

EPA Region 6
Sanitary Survey Form
General Information

Basic System Statistics and information				
Residential Population	**Transient Population**	**Non-Transient Population**	**Number Connections**	**Primary Source Code**
300	2000	1200	120	G
Average Daily Demand (MGD)	**Peak Daily Demand (MGD)**		**Total Production Capacity (MGD)**	
110K gpd	150 K gpd		432 K gpd	
Is the source capacity adequate?	**Have there been any customers without water in the last year? If so, how many incidences and how many days?**			
Yes (Not all sources are metered)	No			
List of Facilities and Description	12 Wells: Well K2 and K3 are existing wells in production at the river (formally called irrigation wells) Wells K4, K5 and K6 are new wells at the river, drilled but not completed and not in production Wells on the Casino Grounds are: South Well, North Well, Well 3, Well 4, Roadway Well, Batch Plant East Well and Batch Plant West Well. 5 Storage tanks: Grand Casino Tank Coker Tank 3 Tanks at the Treatment plant (Raw Tank, Gray Water Tank, Finished Water Tank) 2 Booster Pump Stations: Booster pump Station Grand Booster Pump Station (To be Constructed) Other Systems A separate Gray water system is present at the Grand Casino that is used to flush toilets in the casino and hotel (About 25K gpd)			

Planned Future Capital Improvement Projects	They are laying 12 miles of pipe that will connect this system with Potawatomi RWD 3, which receives water from the McComb Plant. The tribe owns both systems but the RWD is not on trust territory so it is regulated by ODEQ The interconnection will really result in one water system but they will stay separate on the inventory to allow EPA to regulate the trust land (Firelake Grand Casino) system and ODEQ to regulate the RWD. The tribe intends to continue using the treatment facilities and the wells at the Firelake Grand Casino system after the interconnection. There are plans to add a well house at K2 and raise the casing above the floodplain. There are plans to convert the K3 well from a pitless adapter configuration to a vertical well. There are plans to complete Wells K4, K5, and K6 and put them in service. A well house and appurtenances will be added to all three wells. At the treatment plant, there are plans to install a second GAC filter, in parallel with the existing GAC filter.

EPA Region 6
Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake**	**Availability Code (P,E)**	**Activity Code (A,I)**
K2	175 gpm	200	160-180'	P	A
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
Yes	2007	20'	PVC	8"	20
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
3		Yes		No	

Well Conditions	
Is site security Adequate?	No
Is well house or pump subject to flooding?	Yes
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	No
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	Yes
Are pumps equipped with elapsed time meters?	Yes
Is there an emergency connection to another water source?	Planned
Are operational records maintained?	Yes, Elapsed Time
Type alarm present for pump failure?	SCADA alarm

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	Buried	Yes	No	No	Buried	Yes

EPA Region 6
Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	K2
Does the well have a blow off?	No
Does the well have a raw water sample tap?	No
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	No*
Is the well vent height at least 18" above ground level?	No*
Is the sanitary seal intact (or are there any holes or open penetrations)?	No**
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	No
Is the well under the influence of surface water?	No
Does the well need a GUDI test/evaluation?	No
Is the well near any sources of contamination?	No
Does the system monitor raw water quality?	Yes, Fe, Mn, pH
Has there been a source water assessment at this well?	No

* There are plans to raise the well head and vent because the well is in an area where flooding has occurred in the past.

** There is a small hole next to the screen in the well cap that compromises the sanitary seal.

EPA Region 6
Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake**	**Availability Code (P,E)**	**Activity Code (A,I)**
K3	300 gpm*	200	160-180'	P	A
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
Yes	2007	20'	Steel	8"	40
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
3		Yes		No	

Well Conditions	
Is site security Adequate?	No
Is well house or pump subject to flooding?	Yes
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	No
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	Yes
Are pumps equipped with elapsed time meters?	Yes
Is there an emergency connection to another water source?	Planned**
Are operational records maintained?	Yes, Elapsed Time
Type alarm present for pump failure?	SCADA alarm

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	Buried	buried	No	No	Buried	Yes

* The well is equipped with a variable frequency drive (VFD) that is set to maintain a pressure and flow rate at the manifold where the wells join.

** There are plans to construct a 12 mile water line to connect with Potawatomi RWD 3.

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Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	K3
Does the well have a blow off?	No
Does the well have a raw water sample tap?	No
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	No*
Is the well vent height at least 18" above ground level?	No*
Is the sanitary seal intact (or are there any holes or open penetrations)?	No**
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	No
Is the well under the influence of surface water?	No
Does the well need a GUDI test/evaluation?	No
Is the well near any sources of contamination?	No
Does the system monitor raw water quality?	Yes, Fe, Mn, pH
Has there been a source water assessment at this well?	No

* There are plans to convert the well to vertical well and raise the casing and vent. because the well has flooded in the past.

** The well cap is broken.

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Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake**	**Availability Code (P,E)**	**Activity Code (A,I)**
K4	Unknown	50'	20-40'	P	I
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
They will be	10/13 (Not yet Complete)	Unknown	PVC	8"	Unknown
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
Will be 3		They will be		No	

Well Conditions	
Is site security Adequate?	No
Is well house or pump subject to flooding?	N/A
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	N/A
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	N/A
Are pumps equipped with elapsed time meters?	They will be
Is there an emergency connection to another water source?	Planned
Are operational records maintained?	They will be
Type alarm present for pump failure?	Will be done thru SCADA

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	N/A	N/A	N/A	N/A	N/A	Yes

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Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	K4
Does the well have a blow off?	Not yet
Does the well have a raw water sample tap?	Not yet
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	Yes
Is the well vent height at least 18" above ground level?	It will
Is the sanitary seal intact (or are there any holes or open penetrations)?	N/A
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	Not yet
Is the well under the influence of surface water?	Possibly
Does the well need a GUDI test/evaluation?	Yes
Is the well near any sources of contamination?	No, just the river
Does the system monitor raw water quality?	It will be
Has there been a source water assessment at this well?	No

EPA Region 6
Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake** 20-40' 120-140' 160-180'	**Availability Code (P,E)**	**Activity Code (A,I)**
K5	Unknown	220'		P	I
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
They will be	10/13 (Not yet Complete)	Unknown	PVC	8"	Unknown
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
Will be 3		They will be		No	

Well Conditions	
Is site security Adequate?	No
Is well house or pump subject to flooding?	N/A
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	N/A
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	N/A
Are pumps equipped with elapsed time meters?	They will be
Is there an emergency connection to another water source?	Planned
Are operational records maintained?	They will be
Type alarm present for pump failure?	Will be done thru SCADA

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	N/A	N/A	N/A	N/A	N/A	Yes

EPA Region 6Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	K5
Does the well have a blow off?	Not yet
Does the well have a raw water sample tap?	Not yet
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	Yes
Is the well vent height at least 18" above ground level?	It will
Is the sanitary seal intact (or are there any holes or open penetrations)?	N/A
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	Not yet
Is the well under the influence of surface water?	Possibly
Does the well need a GUDI test/evaluation?	Yes
Is the well near any sources of contamination?	No, just the river
Does the system monitor raw water quality?	It will be
Has there been a source water assessment at this well?	No

EPA Region 6
Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake** 20-40' 120-140' 160-180'	**Availability Code (P,E)**	**Activity Code (A,I)**
K6	Unknown	220'		P	I
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
They will be	10/13 (Not yet Complete)	Unknown	PVC	8"	Unknown
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
Will be 3		They will be		No	

Well Conditions	
Is site security Adequate?	No
Is well house or pump subject to flooding?	N/A
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	N/A
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	N/A
Are pumps equipped with elapsed time meters?	They will be
Is there an emergency connection to another water source?	Planned
Are operational records maintained?	They will be
Type alarm present for pump failure?	Will be done thru SCADA

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	N/A	N/A	N/A	N/A	N/A	Yes

EPA Region 6
Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	K6
Does the well have a blow off?	Not yet
Does the well have a raw water sample tap?	Not yet
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	Yes
Is the well vent height at least 18" above ground level?	It will
Is the sanitary seal intact (or are there any holes or open penetrations)?	N/A
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	Not yet
Is the well under the influence of surface water?	Possibly
Does the well need a GUDI test/evaluation?	Yes
Is the well near any sources of contamination?	No, just the river
Does the system monitor raw water quality?	It will be
Has there been a source water assessment at this well?	No

EPA Region 6
Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake**	**Availability Code (P,E)**	**Activity Code (A,I)**
South Well	40-50	200'	Unknown	P	A
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
Yes	2006	40'	PVC	8"	5
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
3		Yes		Yes	

Well Conditions	
Is site security Adequate?	No
Is well house or pump subject to flooding?	No
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	No
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	Yes
Are pumps equipped with elapsed time meters?	Yes
Is there an emergency connection to another water source?	Planned
Are operational records maintained?	Yes
Type alarm present for pump failure?	Done thru SCADA

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	No	Yes	No	No	No	Yes

Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	South Well
Does the well have a blow off?	No
Does the well have a raw water sample tap?	No
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	No
Is the well vent height at least 18" above ground level?	No
Is the sanitary seal intact (or are there any holes or open penetrations)?	No*
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	No
Is the well under the influence of surface water?	No
Does the well need a GUDI test/evaluation?	No
Is the well near any sources of contamination?	Yes**
Does the system monitor raw water quality?	Yes: Fe, Mn, pH
Has there been a source water assessment at this well?	No

* There is a gap in the well where a rope enters the well casing, compromising the sanitary seal.

** The well is located about 20 feet from a roadway and about 100' from a pond used for geothermal cooling/heating.

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Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake**	**Availability Code (P,E)**	**Activity Code (A,I)**
North Well	40-50	200'	Unknown	P	A
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
Yes	2006	40'	PVC	8"	5
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
3		Yes		Yes	

Well Conditions	
Is site security Adequate?	No
Is well house or pump subject to flooding?	No
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	No
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	Yes
Are pumps equipped with elapsed time meters?	Yes
Is there an emergency connection to another water source?	Planned
Are operational records maintained?	Yes
Type alarm present for pump failure?	Done thru SCADA

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	No	Yes	No	No	No	Yes

EPA Region 6
Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	North Well
Does the well have a blow off?	No
Does the well have a raw water sample tap?	No
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	No
Is the well vent height at least 18" above ground level?	No
Is the sanitary seal intact (or are there any holes or open penetrations)?	No*
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	No
Is the well under the influence of surface water?	No
Does the well need a GUDI test/evaluation?	No
Is the well near any sources of contamination?	Yes**
Does the system monitor raw water quality?	Yes: Fe, Mn, pH
Has there been a source water assessment at this well?	No

* There are gaps on both sides of the well head where electrical conduit enters.

** There is an abandoned well within 20' of the well head (The abandoned well is thought to be only 1 or 2 feet deep). The well is adjacent to a run off pond used for geothermal heating/cooling.

EPA Region 6
Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake**	**Availability Code (P,E)**	**Activity Code (A,I)**
Well 3	70	240'	180-200'	P	A
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
Yes	2005	65'	PVC	8"	10
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
3		Yes		Yes	

Well Conditions	
Is site security Adequate?	Yes
Is well house or pump subject to flooding?	No
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	No
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	Yes
Are pumps equipped with elapsed time meters?	Yes
Is there an emergency connection to another water source?	Planned
Are operational records maintained?	Yes
Type alarm present for pump failure?	None

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	Yes	Yes	Yes	No	Yes	Yes

EPA Region 6
Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	Well 3
Does the well have a blow off?	No
Does the well have a raw water sample tap?	Yes
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	No
Is the well vent height at least 18" above ground level?	No*
Is the sanitary seal intact (or are there any holes or open penetrations)?	No**
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	Yes***
Is the well under the influence of surface water?	No
Does the well need a GUDI test/evaluation?	No
Is the well near any sources of contamination?	Yes****
Does the system monitor raw water quality?	Yes: Fe, Mn, pH
Has there been a source water assessment at this well?	No

* The well vent is not turned over and the screen is not 24 mesh.
** There is a gap where the electrical line enters the well head.
*** The well pad does not extend at least 3 feet from the well casing in all directions.
**** There is a treated waste water pond about 400' from the well.

EPA Region 6
Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake**	**Availability Code (P,E)**	**Activity Code (A,I)**
Well 4	50	240'	180-200'	P	A
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
Yes	2005	90'	PVC	8"	10
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
3		Yes		Yes	

Well Conditions	
Is site security Adequate?	Yes
Is well house or pump subject to flooding?	No
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	No
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	Yes
Are pumps equipped with elapsed time meters?	Yes
Is there an emergency connection to another water source?	Planned
Are operational records maintained?	Yes
Type alarm present for pump failure?	Yes, thru SCADA

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	Yes	Yes	Yes	Yes	Yes	Yes

EPA Region 6
Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	Well 4
Does the well have a blow off?	Yes
Does the well have a raw water sample tap?	Yes
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	Yes
Is the well vent height at least 18" above ground level?	Yes
Is the sanitary seal intact (or are there any holes or open penetrations)?	Yes
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	Yes*
Is the well under the influence of surface water?	No
Does the well need a GUDI test/evaluation?	No
Is the well near any sources of contamination?	Yes**
Does the system monitor raw water quality?	Yes: Fe, Mn, pH
Has there been a source water assessment at this well?	No

* The well pad does not extend 3 feet in all directions.

** There is a treated waste water pond about 400' from the well.

EPA Region 6
Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake**	**Availability Code (P,E)**	**Activity Code (A,I)**
Batch Plant East Well	55	220'	Unknown	P	I
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
Yes	2006	90'	PVC	8"	5
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
3		Yes		Yes	

Well Conditions	
Is site security Adequate?	Yes
Is well house or pump subject to flooding?	No
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	No
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	Yes
Are pumps equipped with elapsed time meters?	Yes
Is there an emergency connection to another water source?	Planned
Are operational records maintained?	Yes
Type alarm present for pump failure?	Yes, thru SCADA

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	Yes	Yes	Yes	Yes*	Yes	Yes

* There is no screen on the air relief valve

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Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	Batch Plant East Well
Does the well have a blow off?	Yes
Does the well have a raw water sample tap?	Yes
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	Yes
Is the well vent height at least 18" above ground level?	Yes
Is the sanitary seal intact (or are there any holes or open penetrations)?	No, the well cap is loose.
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	Yes
Is the well under the influence of surface water?	No
Does the well need a GUDI test/evaluation?	No
Is the well near any sources of contamination?	Yes*
Does the system monitor raw water quality?	Yes: Fe, Mn, pH
Has there been a source water assessment at this well?	No

* The well is adjacent to a driveway and within 90 feet of a earthen canal.

EPA Region 6
Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake**	**Availability Code (P,E)**	**Activity Code (A,I)**
Batch Plant West Well	55	220'	Unknown	P	A
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
Yes	2006	90'	PVC	8"	5
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
3		Yes		Yes	

Well Conditions	
Is site security Adequate?	Yes
Is well house or pump subject to flooding?	No
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	No
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	Yes*
Are pumps equipped with elapsed time meters?	Yes
Is there an emergency connection to another water source?	Planned
Are operational records maintained?	Yes
Type alarm present for pump failure?	Yes, thru SCADA

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	Yes	Yes	Yes	Yes**	Yes	Yes

* The electrical line serving the well is not incased in conduit.

** There is no screen on the air relief valve

EPA Region 6
Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	Batch Plant West Well
Does the well have a blow off?	Yes
Does the well have a raw water sample tap?	Yes
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	Yes
Is the well vent height at least 18" above ground level?	There is no vent
Is the sanitary seal intact (or are there any holes or open penetrations)?	No*
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	Yes
Is the well under the influence of surface water?	No
Does the well need a GUDI test/evaluation?	No
Is the well near any sources of contamination?	Yes**
Does the system monitor raw water quality?	Yes: Fe, Mn, pH
Has there been a source water assessment at this well?	No

* The well head is missing the cap and is sealed with duct tape.

** The well is adjacent to a building parking lot, about 100 feet from a Bermuda grass sod operation, and about 60 feet from an earthen canal.

EPA Region 6
Sanitary Survey Form
Sources

Basic Well Information					
Well Name	**Pump Capacity (gpm)**	**Well Depth**	**Depth of Intake**	**Availability Code (P,E)**	**Activity Code (A,I)**
Roadway Well	40-50	200'	Unknown	P	A
Pumping records kept?	**Date Constructed**	**Static Water Level**	**Casing Type**	**Casing Diameter (in.)**	**Pump Horsepower**
Yes	2006	40'	Steel	8"	5
Power Phase		**Pump controls protected?**		**Auxiliary power?**	
3		Yes		Yes	

Well Conditions	
Is site security Adequate?	Yes
Is well house or pump subject to flooding?	Yes*
Does all equipment have adequate access for repair/replacement?	Yes
Is lightning protection available for the pump?	No
Has the pump or controls ever been damaged by lightning?	No
Is electrical equipment secured against weather, insects and animals?	Yes
Are pumps equipped with elapsed time meters?	Yes
Is there an emergency connection to another water source?	Planned
Are operational records maintained?	Yes
Type alarm present for pump failure?	Yes, thru SCADA

Is the Pump equipped with the following?	**Check Valve**	**Isolation Valve**	**Pressure Gauge**	**Air Relief Valve**	**Flow Meter**	**Disinfection System**
	Yes	Yes, at hydrant	No	No	No	Yes

* The well is in a vault in the middle of a roadway.

EPA Region 6
Sanitary Survey Form
Sources

Well Conditions cont'd	
Well Name	Roadway Well
Does the well have a blow off?	No
Does the well have a raw water sample tap?	No
Does the well have a treated water sample tap?	Yes
Does the casing extend at least 18" above the ground?	No
Is the well vent height at least 18" above ground level?	No
Is the sanitary seal intact (or are there any holes or open penetrations)?	No*
Is turbine pump water leaking?	N/A
Is a concrete pad around the well?	No
Is the well under the influence of surface water?	Yes
Does the well need a GUDI test/evaluation?	No
Is the well near any sources of contamination?	Yes**
Does the system monitor raw water quality?	Yes: Fe, Mn, pH
Has there been a source water assessment at this well?	No

* Because the well is in a vault, the vent compromises the sanitary seal.

** The well is located in a roadway and within 60 feet from the geothermal water pond.

EPA Region 6
Sanitary Survey Form
Disinfection (Liquid Feed)

Name of Disinfection Unit			
What type of Disinfection is used?	10% Sodium Hypochorite	**Where is the disinfection application point?**	After RO
Is liquid solution adequately mixed?	Yes	**Continuous Operation?**	Yes
Is liquid solution tank covered?	Yes	**Adequate stand-by equipment?**	Yes
Are there spill containment provisions?	Yes	**Is there a working 4-in-1 valve?**	Yes
Can feed pump operate within the necessary range?	Yes	**Is there a fail safe device attached to a flow switch?**	Yes, at the PLC
How often is dosage checked?	Daily	**Are daily operating records maintained?**	Yes
What is the chlorine usage rate?	5-6 gpd	**Have there been any interruptions in disinfection? Why?**	Not in the last year
Is the disinfection building safe and secure?	Yes	**Is residual measured daily at the feed point?**	Yes, continuous monitoring
What is the chlorine residual goal?	>1 ppm	**Are cross connections present in the chlorination room?**	No

EPA Region 6
Sanitary Survey Form
Disinfection (Cont'd)

Name of Disinfection Unit

Will the first customer receive chlorinated water with adequate contact time to inactivate 99.99% of viruses?

The 20K gallon raw water tank provides contact time for the blended water stream that by-passes the RO treatment. The RO treated water would receive additional inactivation in the finished water storage tank but the blended water does not so it is most critical (lowest chlorine contact time). The maximum flow through the tank is controlled by the flow exiting the tank, which is greatest when the 700 gpm RO booster pump and the 250 gpm blending pumps are both running. Assuming the baffling factor at the finished water tank is 0.07 then the detention time through the tank is
20,000 gall x 0.07/950 gpm = 1.4 minutes.

If the recommended CT for virus inactivation is 6 mg-min/l (worst case assumption), the chlorine residual to meet the recommended CT would be 6/1.4 = 4.3 ppm free chlorine. This is in excess of the maximum residual disinfection level allowed by the National Primary Drinking Water Regulations of 4 mg/l so the current arrangement is not sufficient to provide virus inactivation under the Ground water rule if it were to be applied. However, with the need to meet *giardia* inactivation requirements (due to the GUDI wells), 1.4 minutes would not be adequate. The following table shows the contact time needed for inactivation of giardia assuming a worst case water temperature of 5 C and a pH of 8 and assuming the disinfection process only had to inactivate 0.5 log *giardia* following filtration.

Assumed Concentration	CT (from tables) for .5 log inactivation of *giardia*	DT (min)
0.5	34	68.00
1	36	36.00
1.5	38.5	25.67
2	41	20.50
2.5	42.5	17.00
3	45	15.00
3.5	47	13.43
4	49	12.25

The current finished water storage tank arrangement that allows 1.4 minutes of effective contact time will not be adequate to meet the inactivation requirements of the SWTR.

NOTE: The two chlorination feed points are both fed from the same chlorine feeder, through separate chlorine feed pumps. If the river wells are reclassified as groundwater under the direct influence of surface water wells, then the chlorine feed system will have to be rearranged to feed from two separate chlorine feeders. There is a possibility with the current arrangement that water could bypass the RO unit when the RO booster pumps are turned off and the river wells are pumping (filling the raw water storage) if the check valve in the chlorine feed pump fails. This represents a cross connection and would have to be addressed through separate chlorine feeders.

EPA Region 6
Sanitary Survey Form
Chemical Feed Facilities

Water System Name	Firelake Grand Casino Water System		**Plant Name**	Grand Casino Plant	
Chemicals in Use					
	Chemical Name and Strength	**Chemical Name and Strength**	**Chemical Name and Strength**	**Chemical Name and Strength**	**Chemical Name and Strength**
	Polyphosphate	Anti Scalant	Sodium Bisulfite, chlorine neutralization		
Dosage	Based on residual, adjusted by PLC	0.3 lb/day (2.5 ml/min)			
Point of Use	Before finished storage	Just prior to RO	Just prior to RO		
Reason for Use	Stability enhancement	Prevent scaling on membranes	Remove residual chlorine prior to RO		
Are Chemicals Stored Properly?	Yes	Yes	Yes		
Method for Determining Dose	Poly test/keep below 0.20	Programed thru PLC			
Is solution adequately mixed?	Yes	Yes	Yes		
Is appropriate PPE and safety equipment present?	Yes	Yes	Yes		
Is the solution	Yes	Yes	Yes		

tank covered? **Is the foot valve in a vertical position?** **Is it about 2 inches above the bottom?** **Is the return line (bleed line) located above the maximum solution level?**	Yes No Yes	Yes Yes Yes			
Is there adequate supply of each chemical?	Yes	Yes			
Are there any cross connections associated with the chemical feed system?	No	No			

Chemical Feed Pumps				
	Name and Type of Pump LMI	**Name and Type of Pump** Feed pump*	**Name and Type of Pump** Feed pump*	**Name and Type of Pump** Feed pump*
Are operational controls and instrumentation operational and used (PLC)?	No	No	Yes	Yes
Function	Polyphosphate feed	Chlorine feed (x2)	Anti-Scalant feed	Sodium Bisulfite

Is Capacity Appropriate?	Yes	Yes	Yes	Yes
Condition	Good	Good	Good	Good
Frequency of Calibration				
Is a back up pump maintained?	Yes	Yes	Yes	Yes
What is the pressure rating of the pump?	150	Not available	Not available	Not Available
Is the chemical feed pump tied to well pump operation?	No	No	No	No
Is there a fail safe switch or device?	Yes	Yes	Yes	Yes
Are daily operating records maintained? Do they reflect chemical dosages and pump maintenance?	No	No	No	No

* Thermo static Master flex, peristaltic pumps for two chlorine feeds and for anti scalant and one for the sodium bisulfate.

EPA Region 6
Sanitary Survey Form
Process Control Monitoring

Chemical Analyses				
Parameter?	**Where sample is from?***	**When sample is taken and how often?**	**Method used?**	**Reagents and Methods adequate?**
Turbidity	Raw/Finished	Daily		
Alkalinity	Finished Water	Daily		
Conductivity	Raw/Finished Water	Daily		
pH	Raw/Finished Water	Daily		
Free chlorine	Finished Water	Daily		
Polyphosphate	Finished Water	Daily		
Fe	Raw/Finished Water	Daily		
Mn	Raw/Finished	Daily		

* The finished water sample site is labeled TP001.

EPA Region 6
Sanitary Survey Form
Reverse Osmosis

Name of RO treatment facility	Firelake Grand Casino Water System
Treatment Objective?	TDS/Conductivity reduction (95% conductivity reduction is the goal)
Finished water Goals?	Turb around 0.02 Conductivity ~ 95% removal Fe/Mn ~ None detectable
How often is process control testing done? What testing is done? What are process control goals?	Daily
How often is membrane backwashed? Cleaned?	30 second backwash after a rack shuts down. The racks alternate.
Type of cleaning solutions:	If conductivity removal <95% they do a soft clean (all 3 racks at once). If it is still too low each rack is cleaned individually.
What is the fouling rate of the filter? (days)	A few years. They replaced them 2.5 years ago because chlorine got thru and damaged the membranes.
What is the life of the membrane? (months)	
Type of pre-treatment? (I.e. Screen, Microorganism removal, colloidal removal.)	Chlorine to prevent bio growth, followed by GAC filter to remove chlorine. Sodium Biosilfite for chlorine neutralization
Is pretreatment in good working order?	Yes
Are valves and plumbing in good condition?	Yes
Is security adequate?	Yes
Is treatment building protected from flooding	Yes
Can equipment be accessed and removed from the building for maintenance?	Yes
Are operational records maintained?	Yes

EPA Region 6
Sanitary Survey Form
Pumps and Pumping Facilities

Name of Pump Station	Booster pumps at Treatment Plant
Describe pumps present (Number, types, function)	2 Raw Water blending pumps 2 RO pumps
Pump Capacities (gpm) and Horsepowers	250 gpm x2 700 gpm x 2
Are Pump Capacities Adequate (For production pumps: Able to meet average daily demand with largest pump down for 18 hours)?	Yes, peak is 150 gpm
Are flow meters present? Are flow records kept?	Yes/ on SCADA
In the case of Booster pumps, is there a pressure gauge on the suction and discharge side of the pump? **Is there a fail safe to prevent the suction pressure from going below 10 psi?** **Is the discharge side pressure excessive?**	Both are receiving water from raw water storage. There is an alarm on the SCADA set to raw water tank No
Are redundant pumps present? Is there an isolation valve for each pump?	Yes, Yes
Do Pumps have excessive vibration or heat when running?	No
Is lubrication oil food grade and in good shape?	N/A
Are cross connections present at water lubricated pumps? Is each pump equipped with a check valve?	N/A
Are adequate alarms present? Fail safe?	Yes

Are pumps equipped with elapsed time meters?	Yes, in SCADA
Are operational records maintained?	Yes, in SCADA
Pumping facilities	
Is the pump facility used for incompatible storage?	No
Is the facility subject to flooding?	No
Is the facility secure?	Yes
Are pump controls in good shape and protected from the elements?	Yes

EPA Region 6
Sanitary Survey Form
Pumps and Pumping Facilities

Name of Pump Station	Booster pump Station 1
Describe pumps present (Number, types, function)	2 vertical variable displacement pumps. Move water to a higher pressure plane
Pump Capacities (gpm) and Horsepowers	250 gpm x 2
Are Pump Capacities Adequate (For production pumps: Able to meet average daily demand with largest pump down for 18 hours)?	Yes
Are flow meters present? Are flow records kept?	Yes
In the case of Booster pumps, is there a pressure gauge on the suction and discharge side of the pump? **Is there a fail safe to prevent the suction pressure from going below 10 psi?** **Is the discharge side pressure excessive?**	Yes, 20 psi set point No
Are redundant pumps present? Is there an isolation valve for each pump?	Yes
Do Pumps have excessive vibration or heat when running?	No
Is lubrication oil food grade and in good shape?	N/A
Are cross connections present at water lubricated pumps? Is each pump equipped with a check valve?	N/A
Are adequate alarms present? Fail safe?	

Are pumps equipped with elapsed time meters?	Yes
Are operational records maintained?	Yes
Pumping facilities	
Is the pump facility used for incompatible storage?	No*
Is the facility subject to flooding?	No
Is the facility secure?	Yes
Are pump controls in good shape and protected from the elements?	Yes

* There is an inactive chlorinator in good shape in the pump house that could be used if necessary.

EPA Region 6
Sanitary Survey Form
Storage

Name of Storage Tank	Grand Tank (Standpipe)	Internal Condition	Could not inspect
Type of Material	Steel	Type of Internal Coating	Epoxy
Capacity Is Storage Capacity Adequate?	400K gallons	External Condition	Good
Age	3 Years	Drain Condition	No drain but hydrant nearby
Time since last Cleaning?	Never	Vent and vent Screen Condition	Could not inspect
Ave. Detention time (days)	25	Overflow Condition	Good
Type of Tank (Side stream or flow thru)	Side Stream	Do overflows terminate between 12" and 24" above the splash pad?	Yes
Can tank be isolated from the system?	Yes	Do overflows have splash pads?	Yes
Is the hatch locked and constructed properly?	Could not inspect	Are roof penetrations at level indicator properly sealed?	Could not inspect
Is site security Adequate?	No	Does the level indicator work properly?	No visual indicator, pressure gauge is tied to SCADA
		Is there an altitude valve	No

Is there a need for separate pressure zones?	There are two pressure zones. No need for more.	at the tank? When is the last time it was maintained? Is there a maintenance schedule? Does it work properly?	
How are tank levels controlled? Is it reliable?	Thru SCADA/ Yes	Are there any leaks?	No
Does the operator understand the tank level controls?	Yes		

EPA Region 6
Sanitary Survey Form
Storage

Name of Storage Tank	Raw, Gray and Finished Water Storage Tanks	Internal Condition	Good
Type of Material	Steel	Type of Internal Coating	Epoxy
Capacity Is Storage Capacity Adequate?	20K gallons each	External Condition	Good
Age	2005/2006	Drain Condition	Good
Time since last Cleaning?	Raw water cleaned 7/13. Others, never	Vent and vent Screen Condition	Good
Ave. Detention time (days)	0.18 (4.3hours at finished tank)	Overflow Condition	Good
Type of Tank (Side stream or flow thru)	Flow thru	Do overflows terminate between 12" and 24" above the splash pad?	Yes
Can tank be isolated from the system?	Yes	Do overflows have splash pads?	Yes
Is the hatch locked and constructed properly?	Yes	Are roof penetrations at level indicator properly sealed?	None

Is site security Adequate?	No	Does the level indicator work properly?	No visual level indicator, pressure reading works at SCADA
Is there a need for separate pressure zones?	No	Is there an altitude valve at the tank? When is the last time it was maintained? Is there a maintenance schedule? Does it work properly?	No
How are tank levels controlled? Is it reliable?	SCADA	Are there any leaks?	No
Does the operator understand the tank level controls?	Yes		

EPA Region 6
Sanitary Survey Form
Storage

Name of Storage Tank	Coker Tank	Internal Condition	Could not inspect
Type of Material	Steel	Type of Internal Coating	Epoxy
Capacity Is Storage Capacity Adequate?	110K gallons	External Condition	Good
Age	7/2013	Drain Condition	None, but a hydrant is nearby and can be used
Time since last Cleaning?	Never	Vent and vent Screen Condition	Could not inspect
Ave. Detention time (days)	Unknown	Overflow Condition	Good
Type of Tank (Side stream or flow thru)	Side Stream	Do overflows terminate between 12" and 24" above the splash pad?	Yes
Can tank be isolated from the system?	Yes	Do overflows have splash pads?	Yes
Is the hatch locked and constructed properly?	Could not inspect	Are roof penetrations at level indicator properly sealed?	Could not inspect the roof for penetrations. There is no visual level indicator
Is site security Adequate?	Yes	Does the level indicator work properly?	Yes, via pressure read out

Is there a need for separate pressure zones?	No	Is there an altitude valve at the tank? When is the last time it was maintained? Is there a maintenance schedule? Does it work properly?	No
How are tank levels controlled? Is it reliable?	Via a pressure gauge at the pump station.	Are there any leaks?	No
Does the operator understand the tank level controls?	Yes		

EPA Region 6
Sanitary Survey Form
Distribution

Type of Pipe Material and pipe diameter ranges	Percent of Distribution System Mains	Percent of Leaks
PVC, 2-8"	100	

System Pressure Range	50-85 psi
Are there bottle necks?	No
Number of pressure zones	2
Number of booster pump stations	1
Number of hydrants (flush and fire)	30
Number of Dead End Lines	Maybe 5
How many PRVs are present? Any issues?	None
How many ARVs? How many are in vaults?	Every hill. Lots of them. None in vaults
Are distribution system maps complete?	Yes
Is the system interconnected with any other systems?	Building a connection to Potawatomi Co. RWD 3

Does the system have adequate valving?	Yes
Are leaks numerous?	No
Does the system have construction standards? **Material standards?**	No No
Are pressure or leak tests performed on all new construction?	Yes, pressure
Are proper backfill and bedding procedures used with new or repaired pipes?	Common sense
What Disinfection procedure is used for new lines and repairs?	Put chlorine on the downhill side.
Does the system have a flushing program?	Yes but no formal plan
Does the system have adequate spare parts and repair supplies for the distribution system?	Yes
Are chlorine residuals tested in distribution? How often and where?	Yes, at 3 furthest points
Are there any known cross connections in distribution?	Not known
What are the frequency of main breaks? **Are they frequently in specific areas?**	Not often
Is there a valve exercise program?	No
What is the condition of the valves?	Good

EPA Region 6
Sanitary Survey Form
Management/Operations

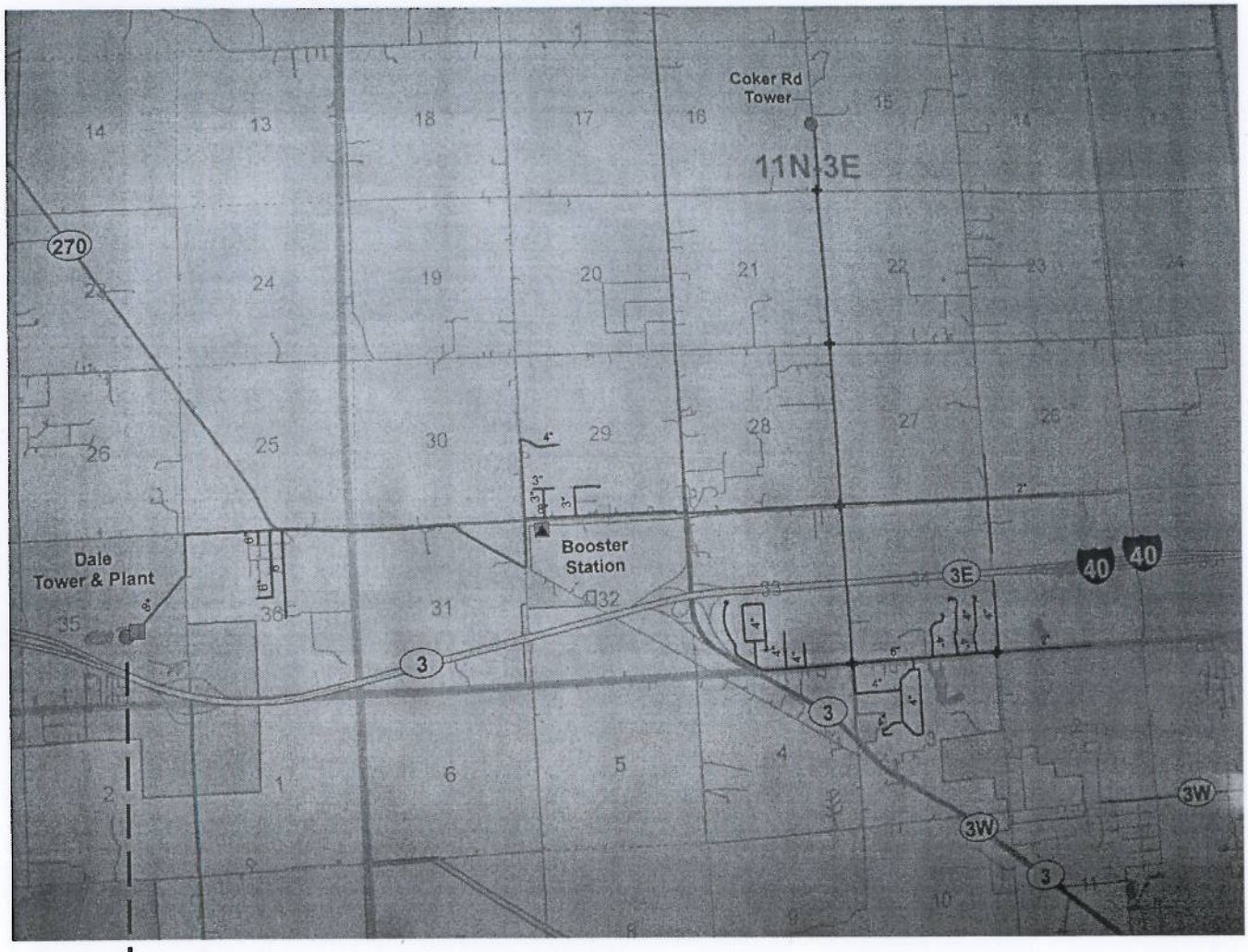
Financial Information	
Does the system have an annual operating Budget?	Yes, but they don't usually meet it.
Does the system bill for water? **What is the fee schedule?** **What is your collection rate?**	Yes $3.90 for 1st 1000 gallons, then $3.50 per 1000 gallons after ~95%
If the utility is metered, does it track unaccounted for water?	Not tracked
Does the system develop an annual financial report?	Yes, the utility director develops one
Does the system have emergency funding?	Yes, from the tribe.
How are spending decisions made?	PO system if necessary but Keith gets what he needs and then does the PO after the fact.
Are there sufficient funds for staff training?	Yes, throughout the year
Does the system have a formal accounting system and formal financial records system?	Yes
Does revenue cover operating expenses?	Pretty close but the utility dept does not pay debt and it is not considered part of operating expenses.
Does the system have a source of capital to cover future improvements and projects?	Yes

Planning	
Does management know what problems are present at the system?	Richard knows
Has somebody at the system prioritized repair/replacement of critical assets?	Ongoing
Does the system have a written emergency plan?	No
Does the system have a master plan?	No
Does the system have source water protection plan?	No
Has a Capacity Assessment been completed?	No
Is there effective communications between management, operators and customers?	The engineer needs to send plans/drawings to EPA in the future.
Is staffing level adequate?	Yes
Is management familiar with SDWA requirements?	To some extent
Are records kept according to requirements? **(MORs – 3 years** **Bacti analyses – 5 years** **Chemical analyses – 10 years** **Documentation of Corrective Actions – 3 years** **Sanitary Survey Reports – 10 years)**	Yes, the system only started in 2006 so some records are still ongoing.

Is monitoring/testing adequate?	Yes
Does the system do required public notifications?	Never have had to.
Does the system do CCR reports?	No, have to this year.
Does the system have a list of critical customers?	No, there is a health clinic
Are operators properly trained?	Yes
Overall water system security	Some improvement needed.
Does the water system have an adequate spare parts inventory?	Yes
Does the water system have a preventive maintenance program?	No
Is there an active and knowledgeable utility board?	No, there is a utility director
Is there an asset management program? Is there a system wide inventory of equipment and appurtenances?	No
Are operational and financial reports presented by operators/staff to governing body each meeting?	No governing body. The director does reports.
Do operators have adequate tools for performing their duties?	Yes
Have key governing body officials attended water system management training?	No

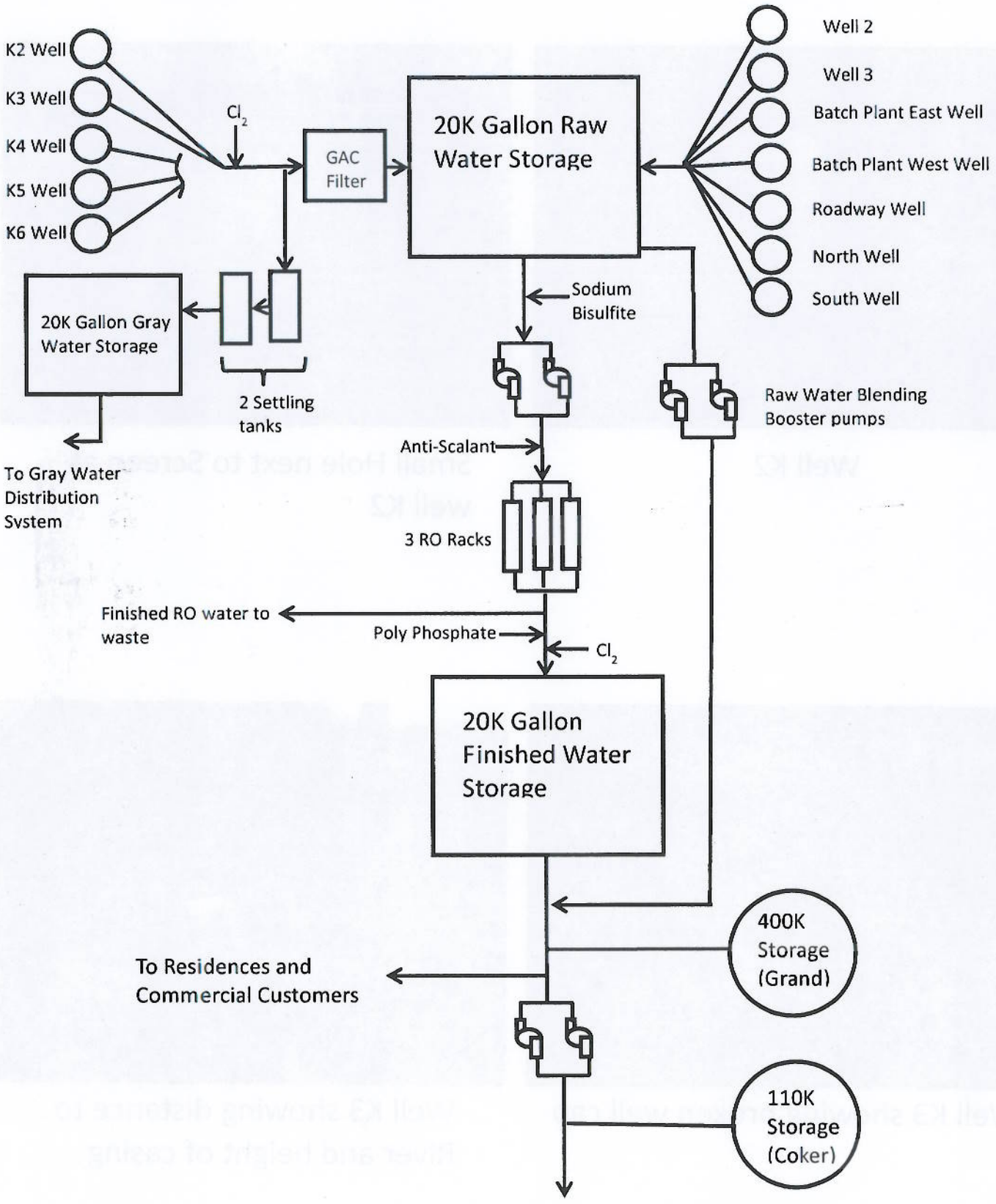
Does the system have a drought management plan?	No
Does the system have written policies that are distributed to operators, are clearly understood and implemented?	No
Operations	
Does the system have a coliform monitoring plan?	Yes
Does the system have SOPs?	No

EPA Region 6
Sanitary Survey Form
System Map



Line from P Co. RWD 3 will come in here

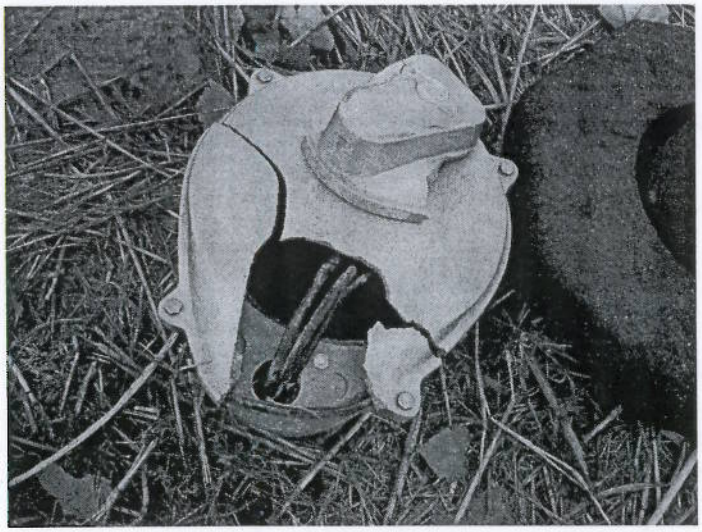
EPA Region 6
Sanitary Survey Form
System Schematic



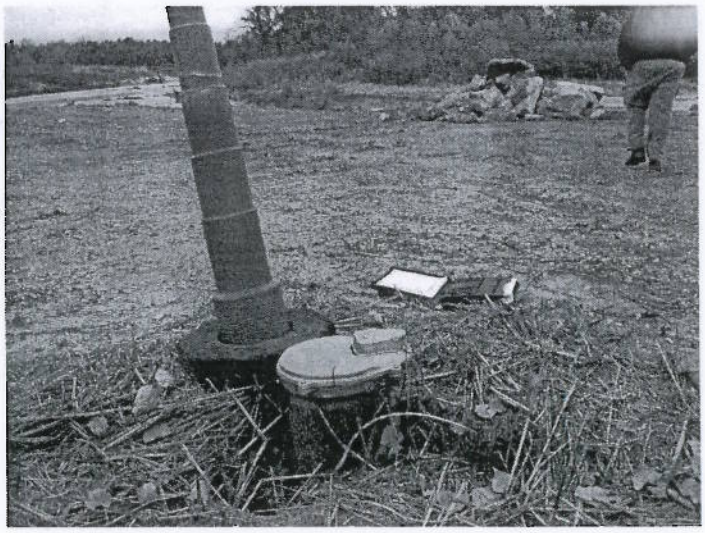
EPA Region 6
Sanitary Survey Form
Photos

Well K2

Small Hole next to Screen at well K2

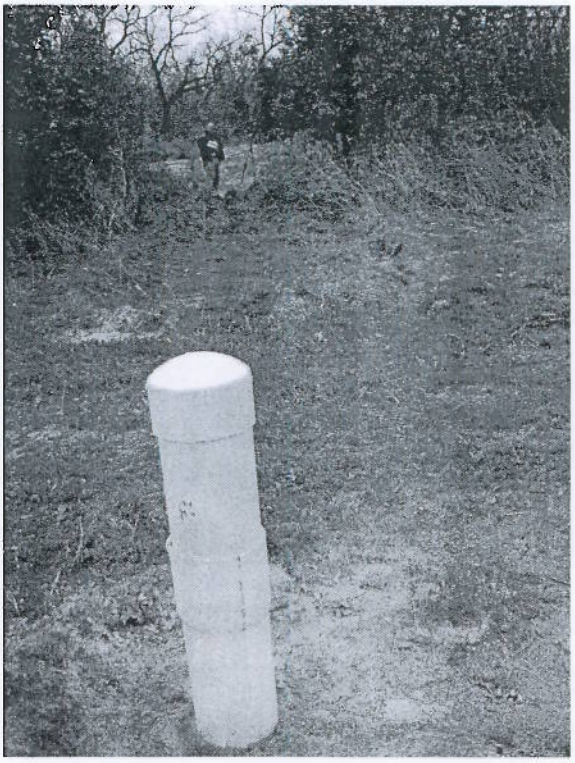


Well K3 showing broken well cap



Well K3 showing distance to River and height of casing

EPA Region 6
Sanitary Survey Form
Photos



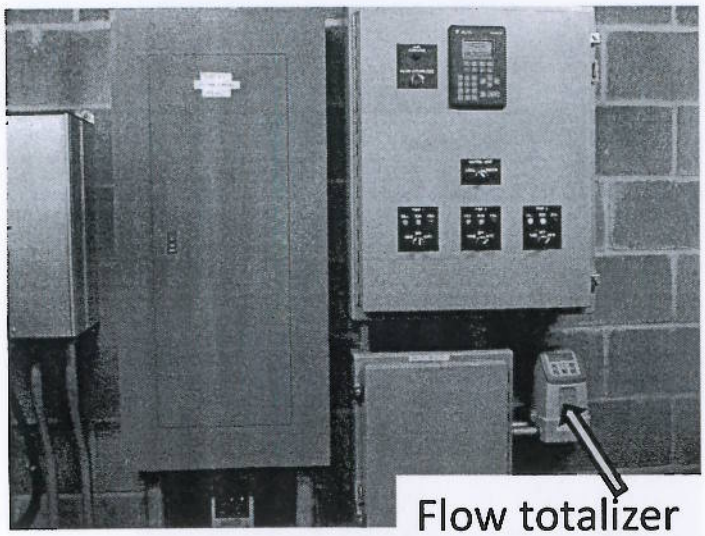
Well K4 casing showing distance to river

Well K5 casing showing distance to river

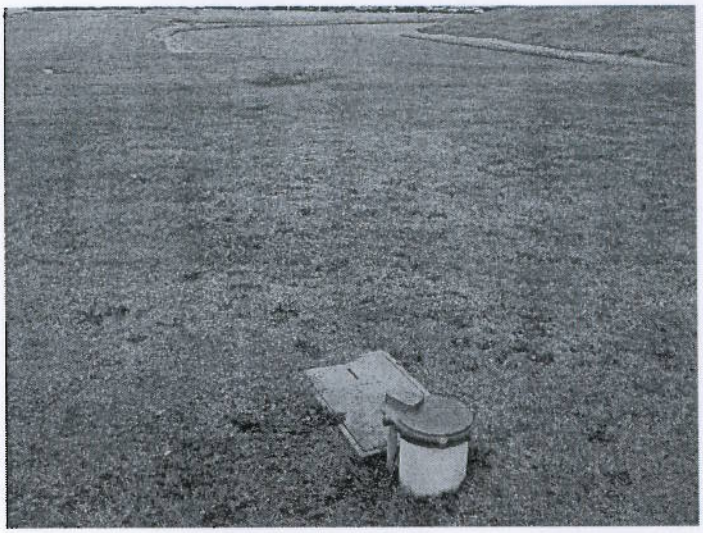
Well K6 casing showing distance to river

Control building for River Wells (K Wells)

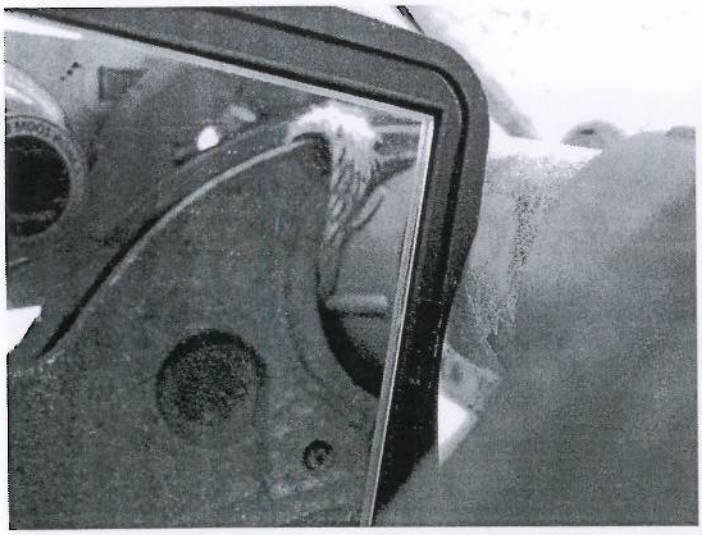
EPA Region 6
Sanitary Survey Form
Photos



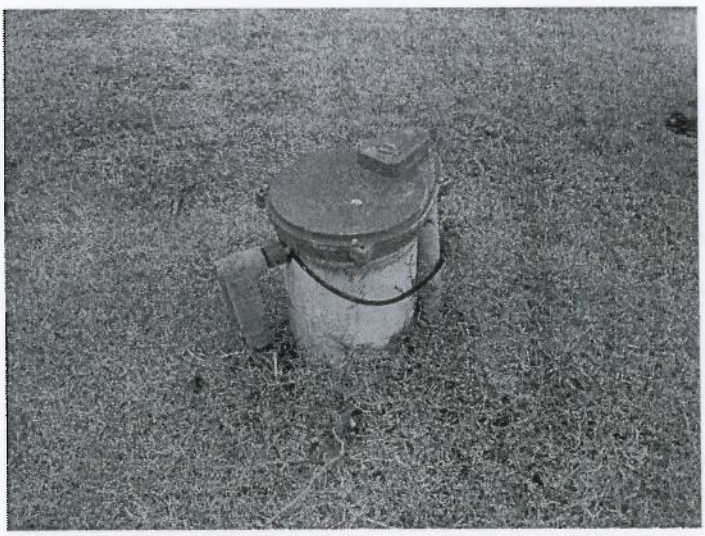
Controls for River Wells



South Well with Geothermal pond in background and showing casing height

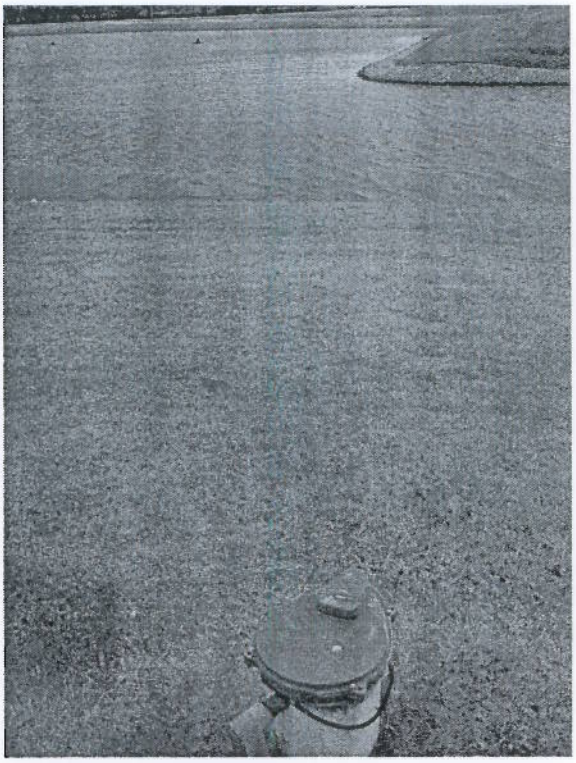


South well showing gap where rope enters the well head

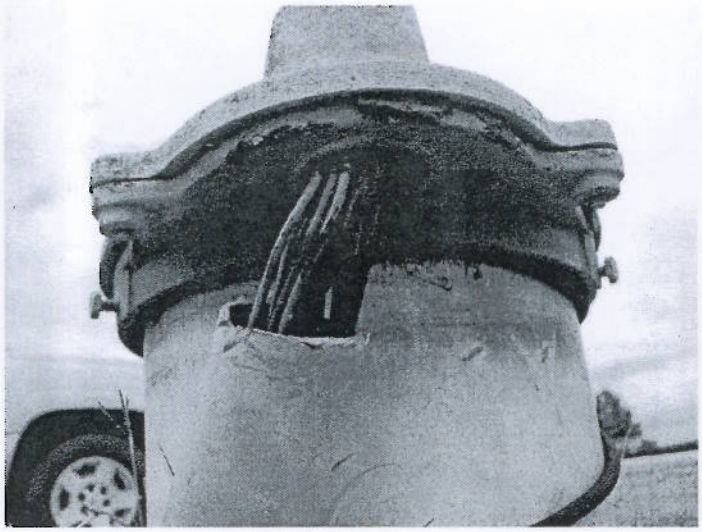


North well showing casing height and electrical conduit on two sides.

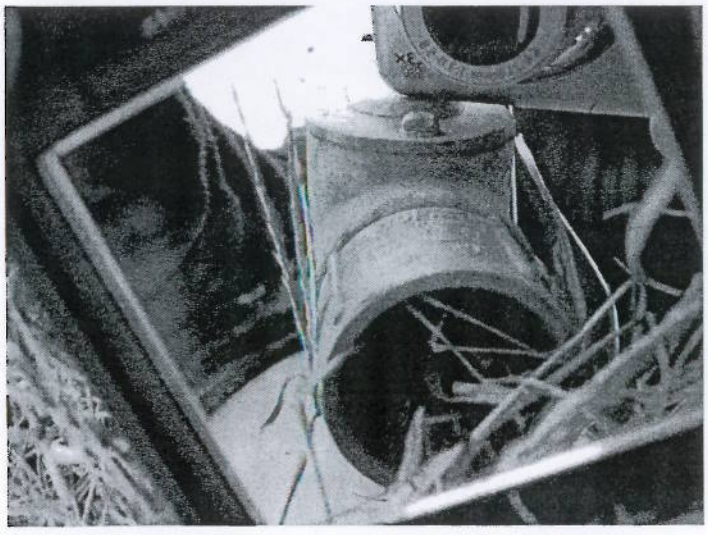
EPA Region 6
Sanitary Survey Form
Photos



North well showing proximity to geothermal pond



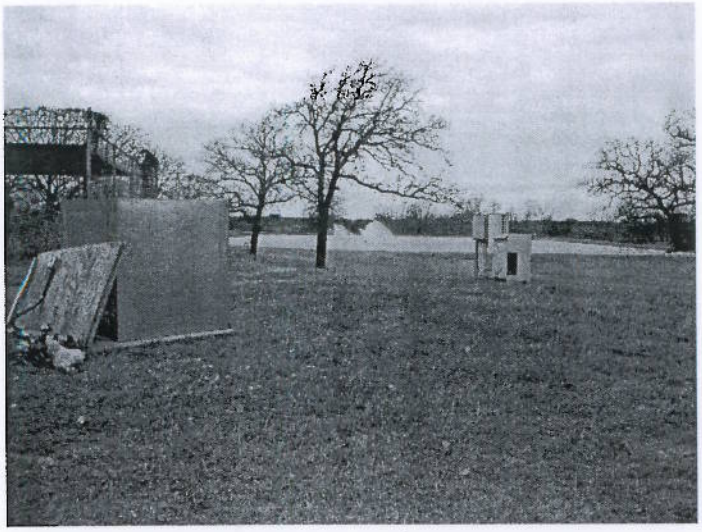
North well showing gap where electrical lines enter on one side



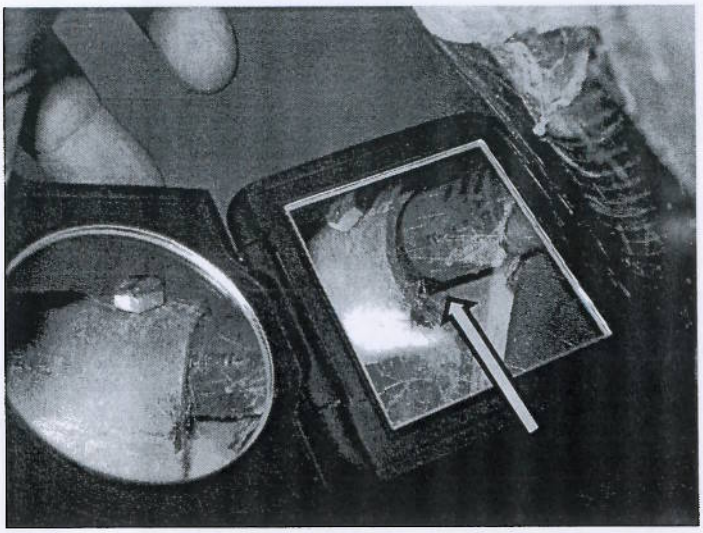
North well showing gap where electrical lines enter the other side

North well showing nearby abandoned well

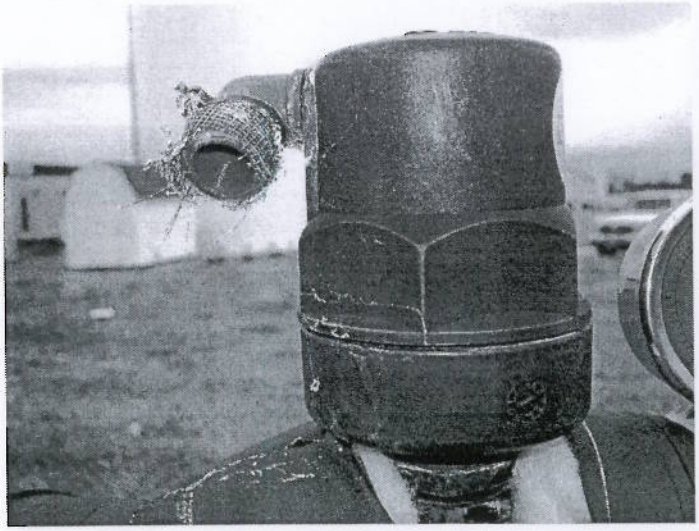
EPA Region 6
Sanitary Survey Form
Photos



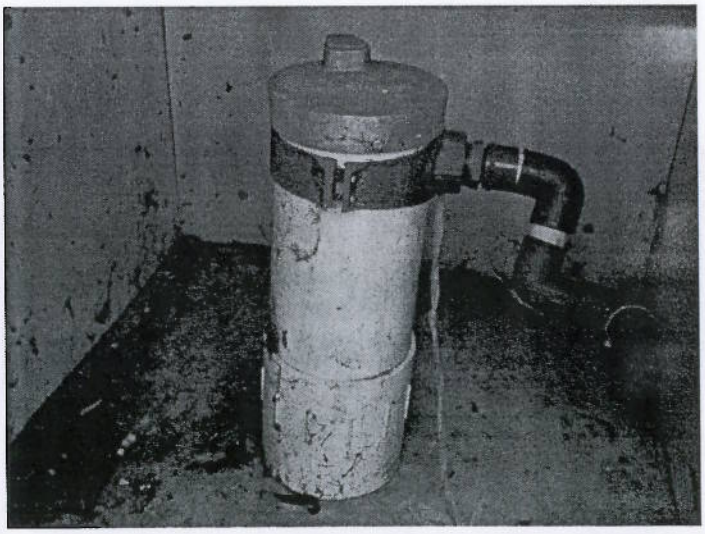
Well 3 well house showing proximity to waste water pond



Well 3 gap where electrical line enters well head



Torn screen on air relief valve at Well 3



Well 3 showing vent not turned over and too low

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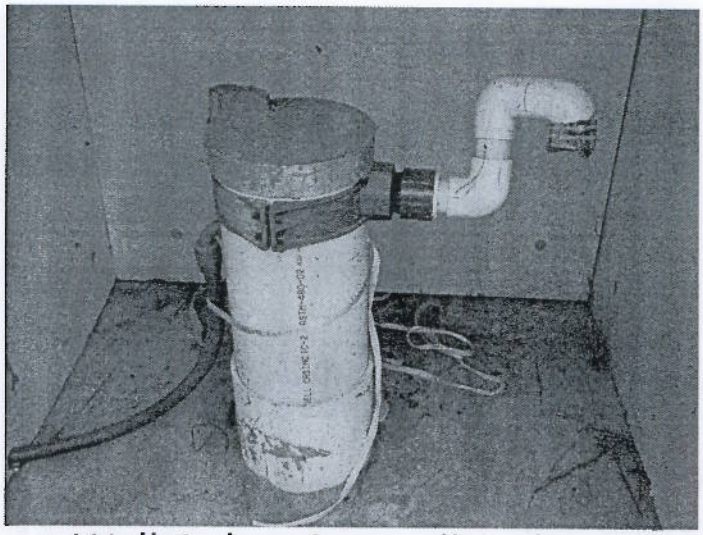
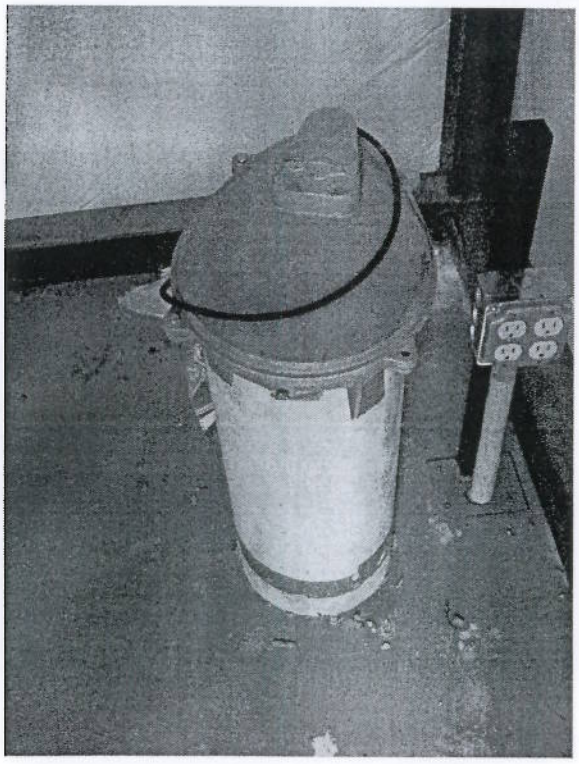
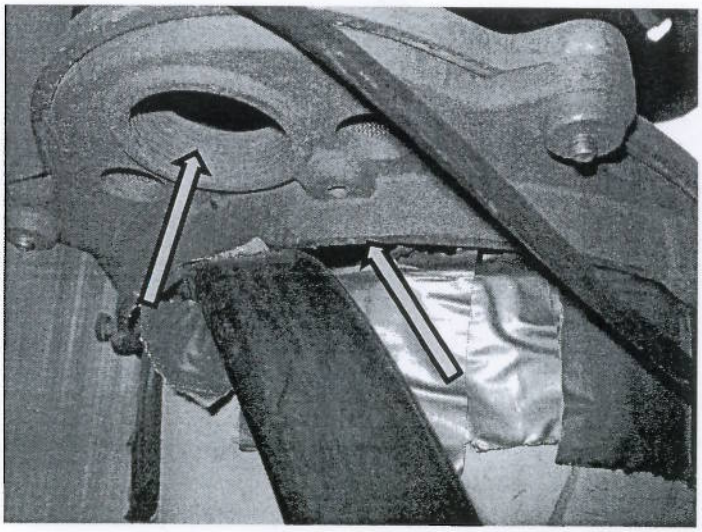
Well 4 well house showing proximity to waste water pond.



Well 4 showing well pad



Batch Plant East well



Batch Plant East Well loose well cap and hole at electrical line

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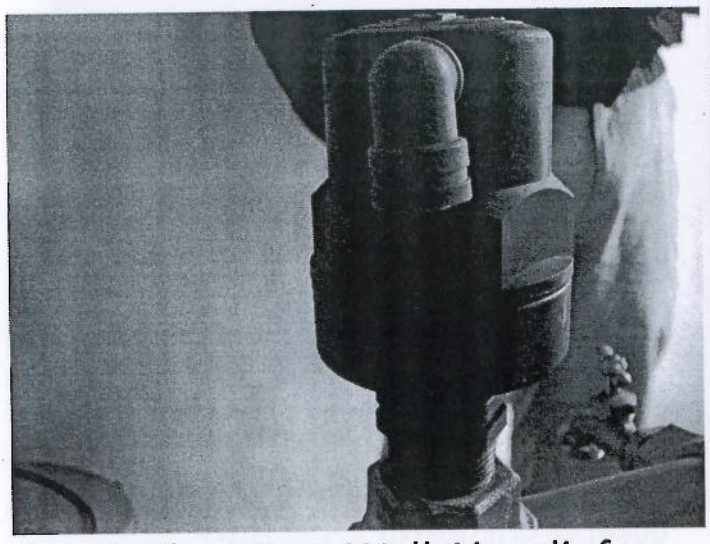
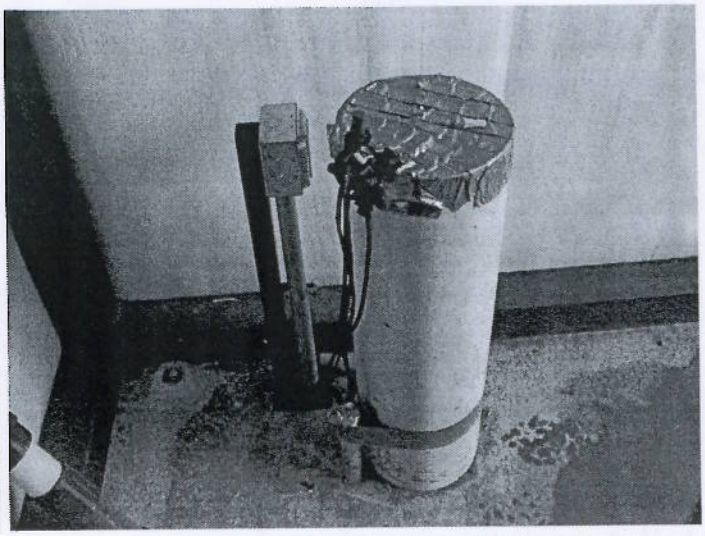
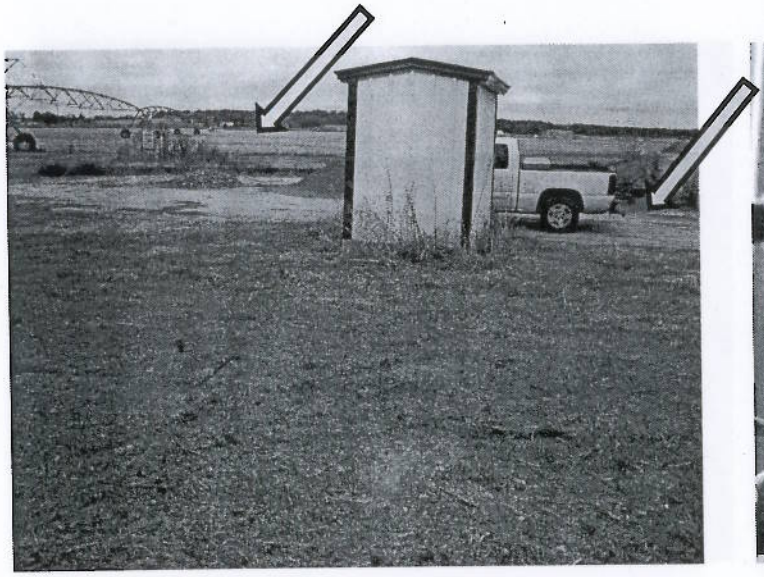


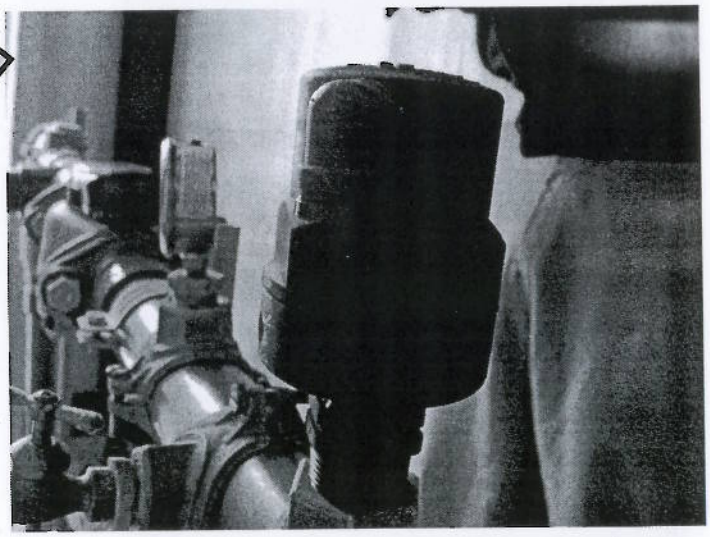
Batch Plant East Well Air relief valve unscreened



Batch Plant West Well showing duct tape cap, hole where electrical lines enter and lack of electrical conduit



Batch Plant West well house adjacent to parking area and grass farming operations



Unscreened air relief valve at Batch Plant West Well

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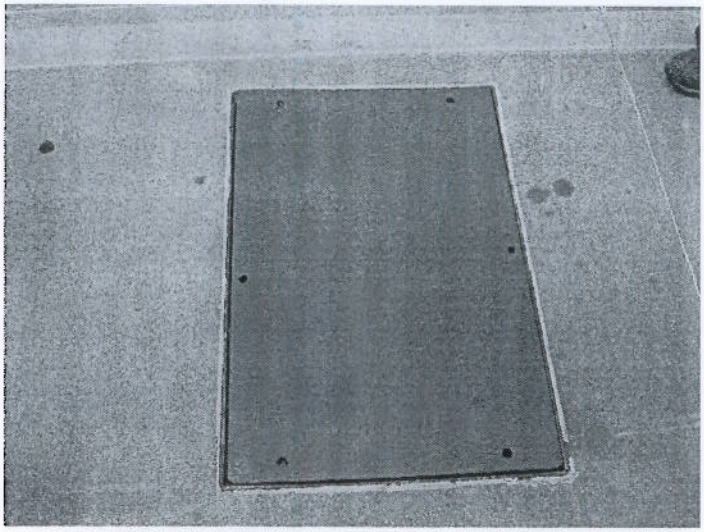
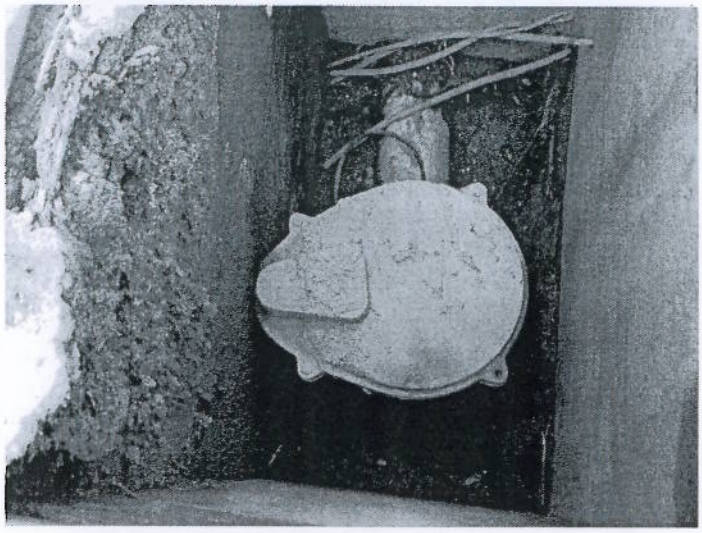
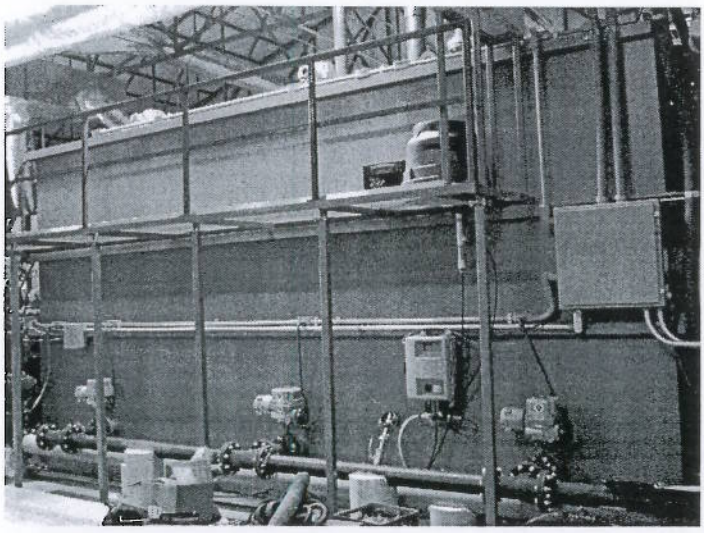


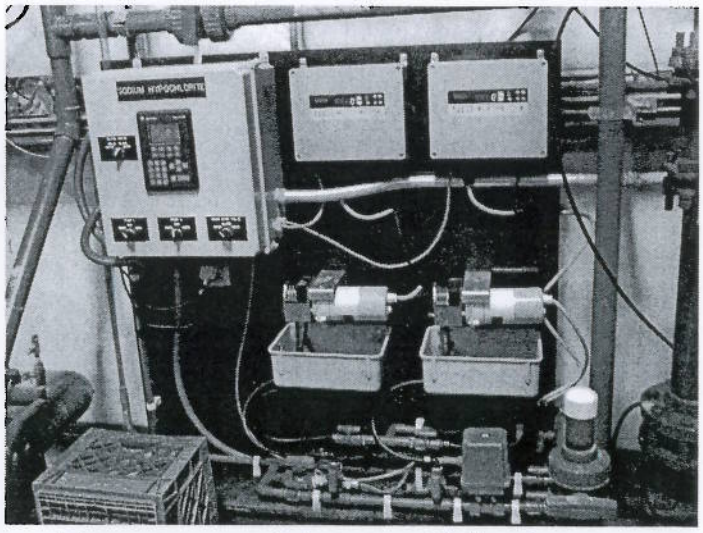
Roadway well vault in Road



Roadway Well in Vault



Treatment Plant – GAC Filters



Treatment Plant – Chlorine feed system

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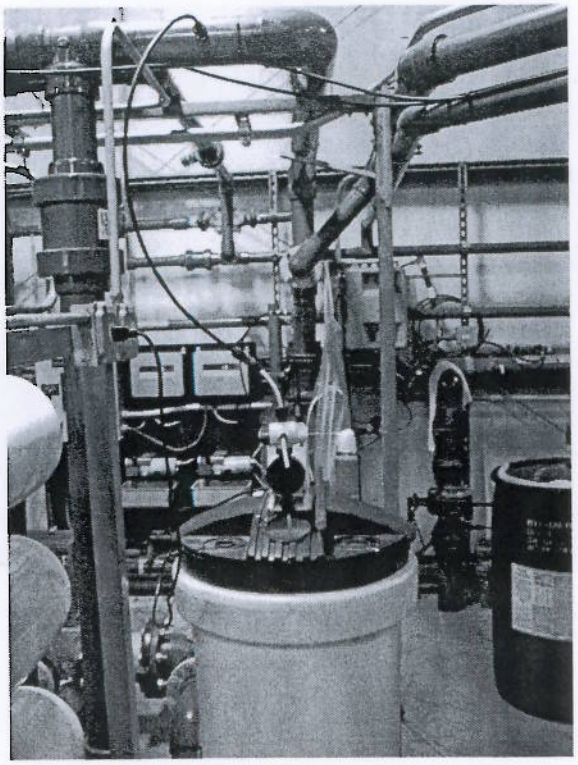
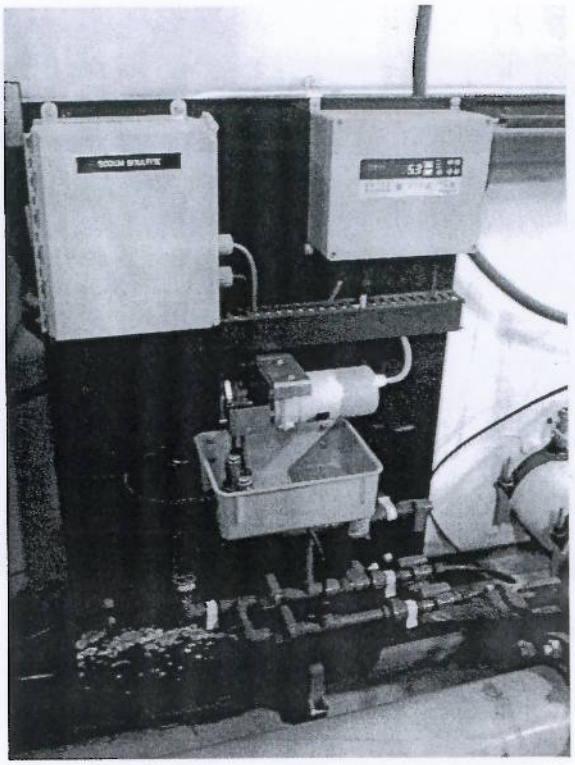
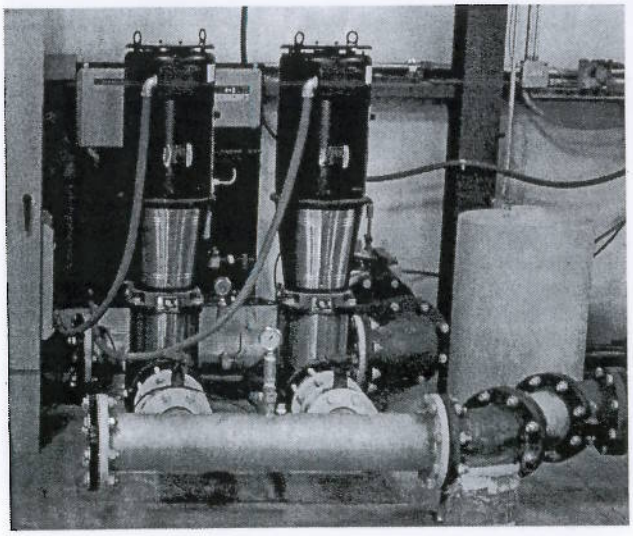


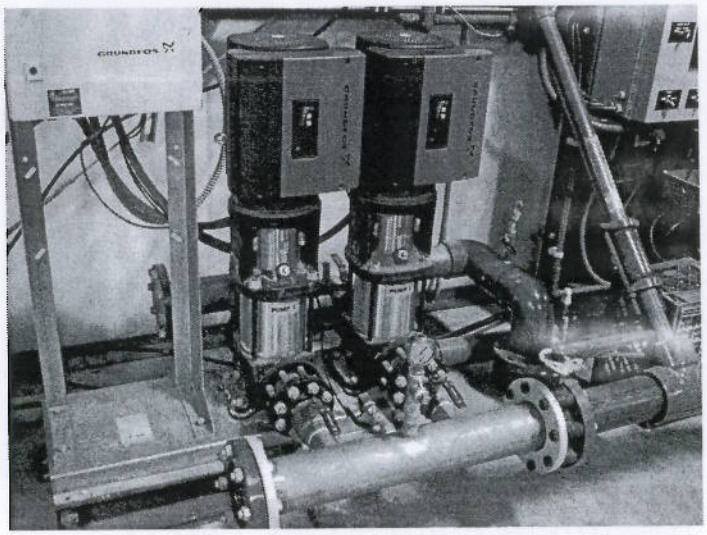
Treatment Plant – Polyphosphate feed system



Treatment Plant – Sodium Bisulfite feed system



Treatment Plant - RO Booster pumps



Treatment Plant – Blended water Booster pumps

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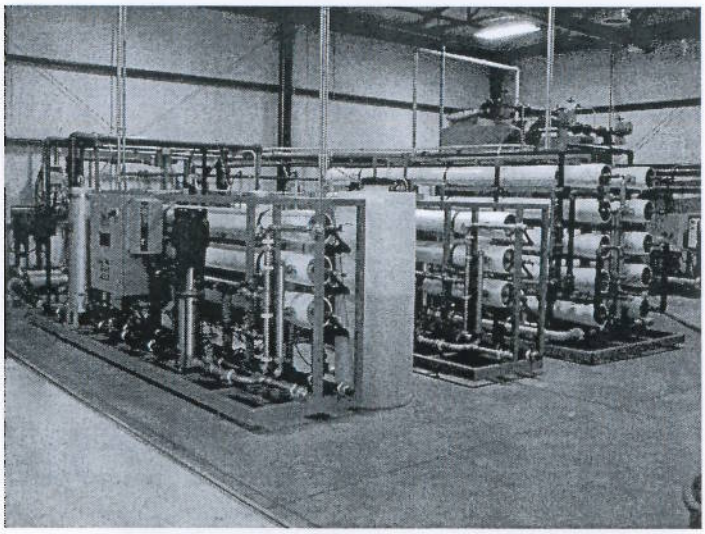
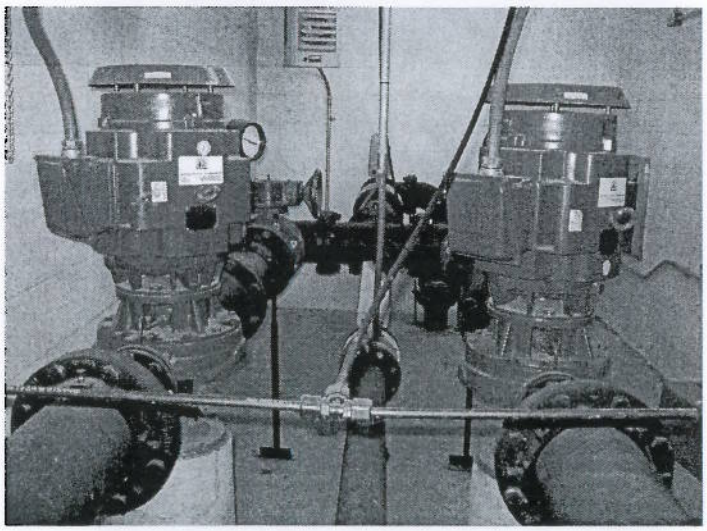
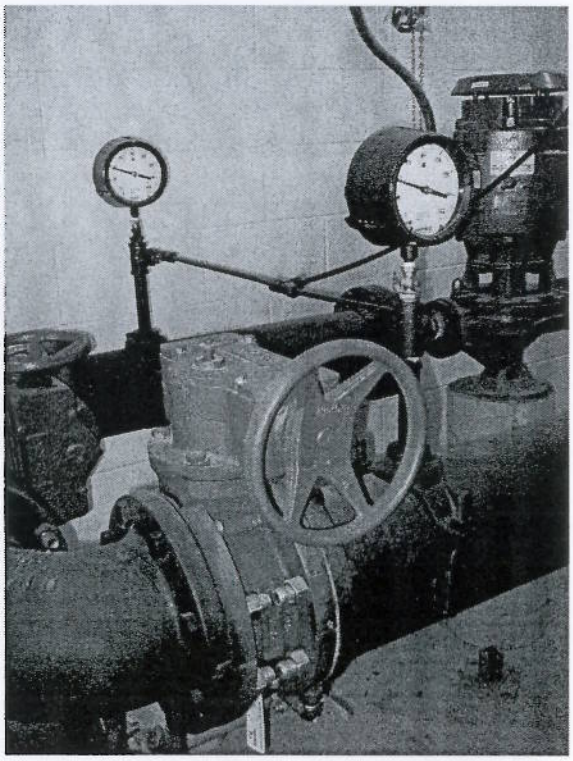


Treatment Plant – RO Racks

Booster pump house



Booster pumps at Booster pump station 1



Influent Pressure gauges at Booster pumps

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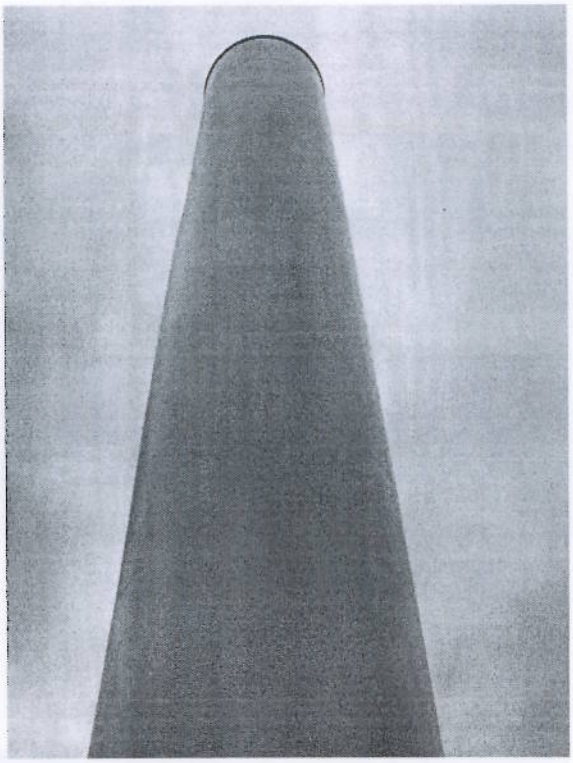
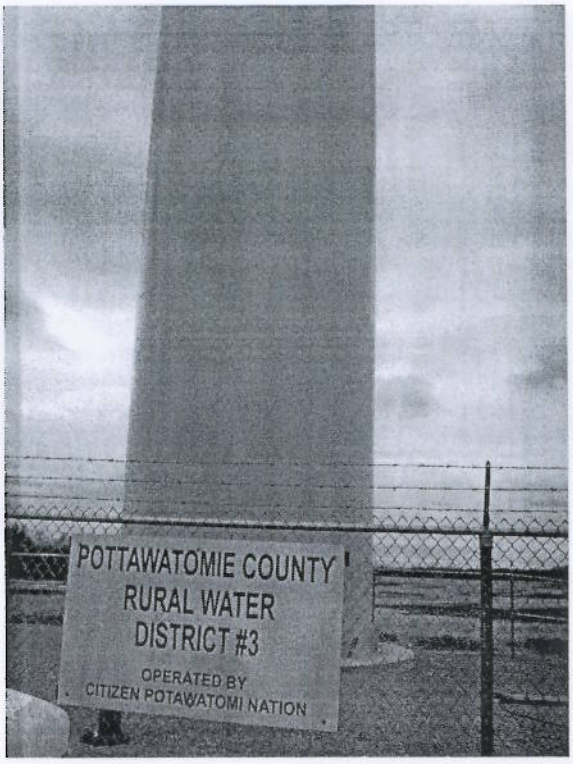
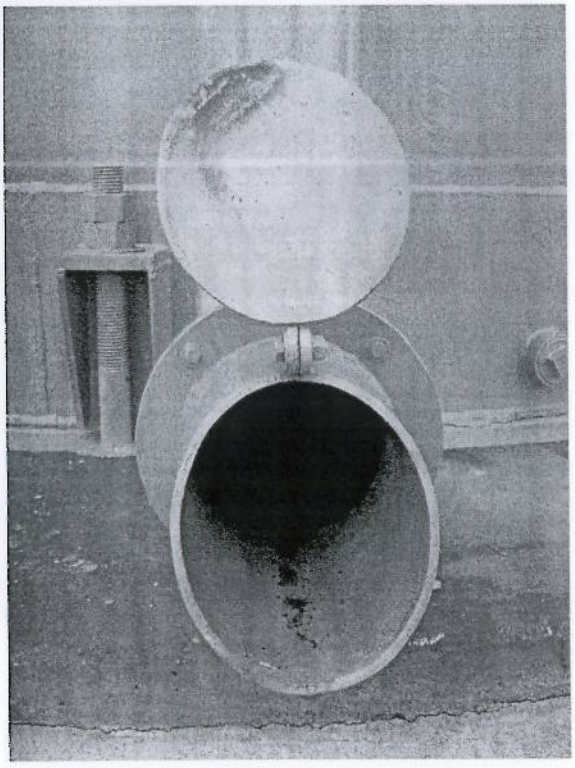
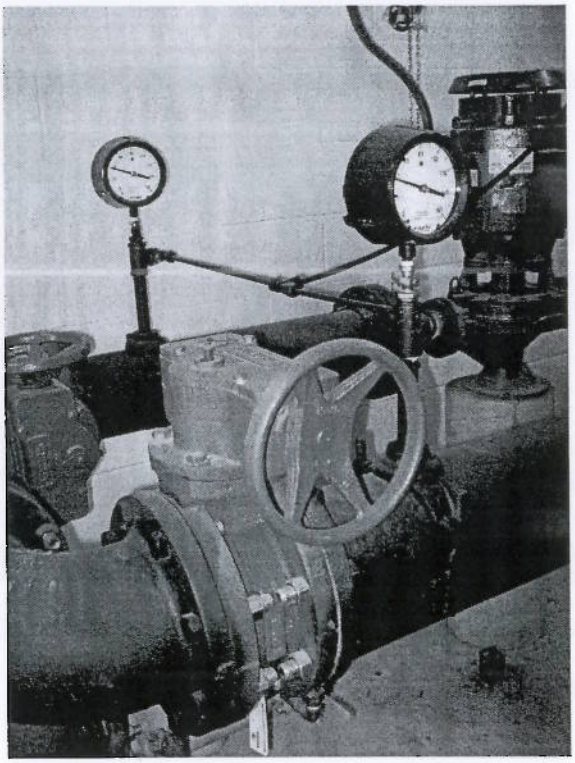


Coker Standpipe





Coker standpipe overflow showing some iron precipitate



Effluent pressure gauges at Booster pumps

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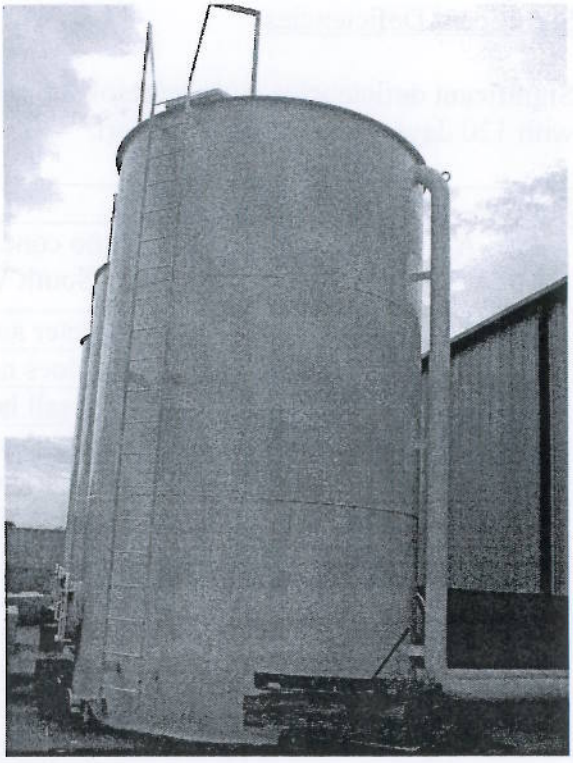
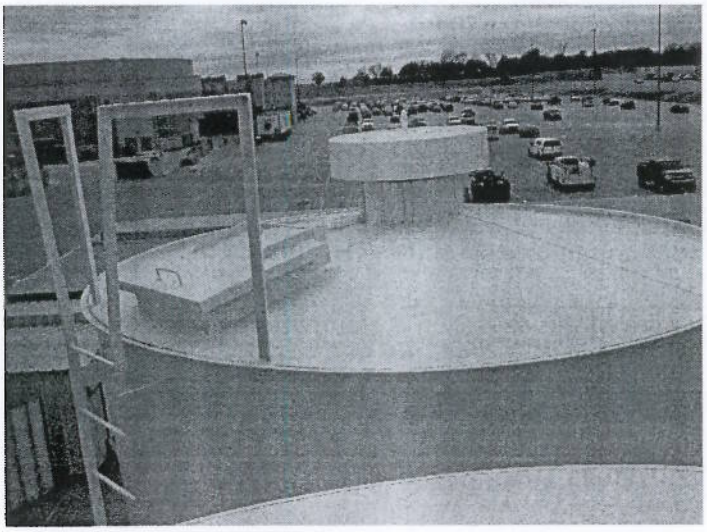
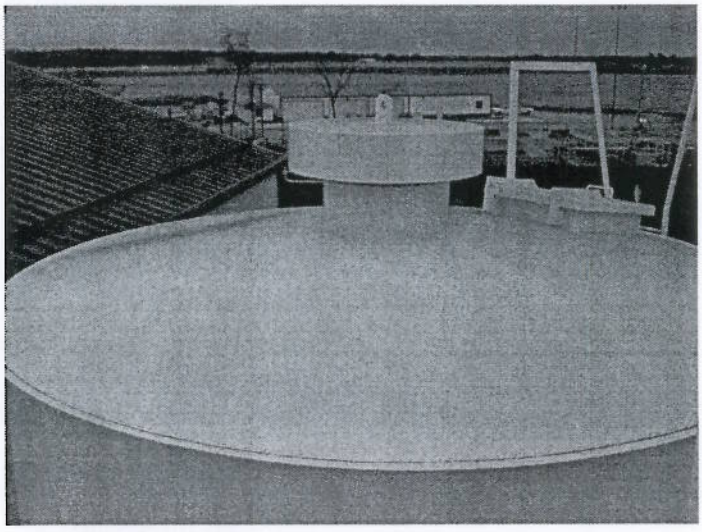
Grand Standpipe



Raw, Gray and Finished water storage tanks



Top of Gray Water Tank



Top of Raw Water Tank

Firelake Grand Casino Water System Findings

Significant Deficiencies

Significant deficiencies must be resolved, or be on an approved schedule for resolution with 120 days of receipt of the report.

Sources	
All wells	There are no concrete pads around any of the K wells or the North and South Wells
K2 Well	The flow meter and check valve are buried
	The casing does not extend at least 18" above the ground
	There is a small hole next to the vent screen in the well cap
	There is no blow off, no pressure gauge and no raw water sample tap at the well
K3 Well	The flow meter, check valve and isolation valves are buried
	There is no blow off and no raw water tap
	The casing and vent at K3 do not extend at least 18" from the ground and it has flooded in the past (There are plans to raise it and convert it to a vertical well)
	The well casing cap had been damaged and was broken into several pieces, therefore the sanitary seal was not intact.
K4	The well is under the influence of surface water
K5	The well is under the influence of surface water
K6	The well is under the influence of surface water
South Well	The well has no flow meter, pressure gauge, blow off, raw water sample tap or check valve.
	There is a gap in the well head where a rope enters the casing. This compromises the sanitary seal.
	The well casing and vent do not extend at least 18" above the ground
North Well	The well has no flow meter, pressure gauge, blow off, raw water sample tap or check valve.
	There is an abandoned well within 20' of the north well (said to be only 1 or 2 feet deep)
	The well casing and vent do not extend at least 18" above the ground
	There are openings in both of the electrical conduits going into the well.
Well 3	The well vent is not 18" above the ground, is not turned over and does not have a 24 mesh screen.
	The well 3 pad does not extend 3 feet from the well casing in all directions.
	Well 3 does not have a blow off
	There is a gap where the electrical conduit is connected to the well casing cap that compromises the sanitary seal.
Well 4	The concrete pad at well 4 does not extend 3 feet in all

	directions.
	Well 4 was not locked.
Batch Plant West Well	There is no screen on the Batch Plant West well air relief valve
	The electrical line connected to the Batch Plant West well is not in a conduit.
	The Batch Plant West well does not have a proper well cap (duct tape)
	There is no vent on the Batch Plant West well head.
	The concrete pad does not extend 3 feet in all directions from the edge of the casing.
Roadway well	The roadway well has no flow meter, blow off, raw water sample tap or pressure gauge.
	The roadway well is below grade, in a vault
Storage	
Finished Water Storage tank (20K gallon tank)	The finished water storage tank was put into service in 2006/2007 and has never been inspected/cleaned.

Deficiencies

Deficiencies must be resolved by the next sanitary survey or they become significant deficiencies.

Sources	
Well 3 and Well 4	The wells are within 400 feet of a treated wastewater pond. (Plans for future wells should be submitted to EPA prior to construction to prevent similar situations.)
Batch Plant East Well	There is no screen on the Batch Plant East well air relief valve, however the well is inactive. The screen needs to be fixed before activation.
	The well cap is loose on the Batch Plant East well (inactive well needs to be corrected before being activated). It also has a hole where the electrical line enters.
Management	There is no emergency plan for the PWS (There was no previous requirement for an emergency plan but this survey will change the water system classification to *community*).
Storage	There is no gasket on the raw/gray or finished water 20K gallon storage tank hatch lids.

Recommendations

Recommendations are non-binding suggestions.

1. Consider improving the security at the K Wells and the storage tanks on the Casino grounds
2. The utility should submit plans for the completed K wells to EPA for review.
3. Consider adopting construction standards.
4. In the future send all engineering plans and specifications to EPA Region 6 for review prior to constructing new facilities or revising existing facilities.

5. Recommend adopting AWWA procedure for disinfecting lines after repairs, and after adding new lines.
6. Recommend putting together a formal flushing plan
7. Recommend tracking non revenue water
8. Consider developing a preventive maintenance program
9. If the river wells are reclassified as groundwater under the direct influence of surface water, then rearrange the chlorine feed system to have two separate chlorine feeders (chlorine feed tanks and pumps) feeding the two chlorine injection points.